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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,240	07/29/2003	Kouji Yamaguchi	740709-507	4752

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NIXON PEABODY, LLP  
401 9TH STREET, NW  
SUITE 900  
WASHINGTON, DC 20004-2128

EXAMINER
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MCKINNON, TERRELL L

ART UNIT	PAPER NUMBER
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3753

DATE MAILED: 04/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/628,240	YAMAGUCHI ET AL.	
	Examiner	Art Unit	
	Terrell L. Mckinnon	3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,5-17,19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5,8-12,15 and 20 is/are rejected.
- 7) ☒ Claim(s) 6,7,13,14,16,17 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7/23/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

***Response to Amendment***

Receipt is acknowledged of applicant's amendment filed February 17, 2006. Claims 2-4 and 18 have been canceled without prejudice. Claims 1, 5-17, 19 and 20 are pending and an action on the merits is as follows.

Applicant's arguments with respect to claims 1, 5-17, 19 and 20 have been considered but are moot in view of the following grounds of rejection.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 5, 8-12, 15 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ling et al. (U.S. 2002/0132077) in view of Takabayashi et al. (U.S. 5,262,227).

Ling's invention discloses a flowable material container and method comprising:

- a flexible heat exchanger including a pair of thermoplastic polymer films  
[0010], [0012], [0044] ;
- a heat conductive film on the surface, the heat exchanger is capable of being used in a variety of environments including spacecraft vehicles for cooling heat electrical generated devices;

- fusing together thermoplastic polymer films to form a conduit pattern between the films [0002] and [0011]; wherein
- the flexible heat exchanger has a thickness in the range of 5 um to 20 mm ([0025], [0028], [0048] and [0049]).

Ling fails to disclose the thermoplastic polymer films each comprising no glass transition temperature or a glass transition temperature of 340 degrees C or higher and a thermoplastic aromatic polyimide surface film showing a glass transition temperature in the range of 190 to 300 degrees C fixed to the substrate film in such manner that the surface films face each other; and polyimide films comprising polyimide produced from an aromatic tetracarboxylic acid compound selected from the group consisting of 3,3',4,4'-biphenyltetracarboxylic dianhydride and pyromellitic dianhydride and a diamine compound selected from the group consisting of p-phenylenediamine and a combination of p-phenylenediamine and 4,4'-diaminophenyl ether, and a thermoplastic aromatic polyimide surface film comprising polyimide produced from an aromatic tetracarboxylic acid compound comprising 3,3',4,4'-biphenyltetracarboxylic dianhydride and 4,4'-oxydiphthalic dianhydride and a diamine compound selected from the group consisting of 1,3-bis(4-aminophenoxy)benzene and 1,3-bis(4-aminophenoxy)benzene.

3. However, Takabayashi teaches the use of composite films comprising a an aromatic polyimide substrate film showing no glass transition temperature or a glass transition temperature of 340 degrees C or higher and a thermoplastic aromatic polyimide surface film showing a glass transition temperature in the range of 190 to 300

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degrees C fixed to the substrate film in such manner that the surface films face each other (column 7; lines 22-40; column 13; lines 67-column 14; line 54); and polyimide films comprising polyimide produced from an aromatic tetracarboxylic acid compound selected from the group consisting of 3,3',4,4'-biphenyltekacarboxylic dianhydride and pyromellitic dianhydride and a diamine compound selected from the group consisting of p-phenylenediamine and a combination of p-phenylenediamine and 4,4'-diaminophenyl ether, and a thermoplastic aromatic polyimide surface film comprising polyimide produced from an aromatic tetracarboxylic acid compound comprising 3,3',4,4'-biphenyltekacarboxylic dianhydride and 4,4'-oxydiphthalic dianhydride and a diamine compound selected from the group consisting of 1,3-bis(4-aminophenoxy)benzene and 1,3-bis(4-aminophenoxy)benzene (column 5; lines 45-column 6).

Given the teachings of Takabayashi, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the polymer film heat exchanger of Ling with the use of an aromatic polyimide substrate film showing no glass transition temperature or a glass transition temperature of 340 degrees C or higher and a thermoplastic aromatic polyimide surface film showing a glass transition temperature in the range of 190 to 300 degrees C fixed to the substrate film in such manner that the surface films face each other; and polyimide films comprising polyimide produced from an aromatic tetracarboxylic acid compound selected from the group consisting of 3,3',4,4'-biphenyltekacarboxylic dianhydride and pyromellitic dianhydride and a diamine compound selected from the group consisting of p-phenylenediamine and a combination of p-phenylenediamine and 4,4'-diaminophenyl ether, and a thermoplastic

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aromatic polyimide surface film comprising polyimide produced from an aromatic tetracarboxylic acid compound comprising 3,3',4',4'-biphenyltetracarboxylic dianhydride and 4p,4p'-oxydiphthalic dianhydride and a diamine compound selected from the group consisting of 1,3-bis(4-aminophenoxy)benzene and 1,3-bis(3-aminophenoxy)benzene.

Doing so would improve the heat transferring characteristics of the heat exchanger.

***Allowable Subject Matter***

4. Claims 6, 7, 13, 14, 16, 17 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terrell L. Mckinnon whose telephone number is 571-272-4797. The examiner can normally be reached on Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Mancene can be reached on 571-272-4930. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Terrell L Mckinnon  
Primary Examiner  
Art Unit 3753  
April 21, 2006